UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama
Sidang Akademik 1997/98

September 1997

SBW231 - Demografi dan Dasar Kependudukan/
SBW314 - Demografi dan Pembangunan Tenaga Manusia

Masa: [3 Jam]

Sila pastikan bahawa kertas peperiksaan ini mengandungi LAPAN muka surat yang bercetak sebelum anda memulakan peperiksaan ini.

Jawab TIGA (3) Soalan.

1. Apakah yang dimaksudkan dengan Dasar Kependudukan? Bincangkan langkah-langkah utama yang di ambil oleh kerajaan Malaysia bagi mempengaruhi kependudukan negara ini.

(100 markah)

2. "Tren kesuburan dan kematian penduduk Melayu di Semenanjung Malaysia sejak 1957 - 1991 terkeluar daripada tren biasa Teori Peralihan Demografi" (Leete, 1996). Bincangkan pernyataan ini berdasarkan perubahan sosioekonomi dan dasar pembangunan yang diamalkan di negara ini.

(100 markah)

3. Berdasarkan Jadual Hayat yang diberi:

   a) Andaikan mortaliti lelaki bagi tiga kumpulan umur penduduk yang sekarang berumur 20, 40, dan 60 masing-masing. Tentukan umur jangkaan mati bagi ketiga-tiga kumpulan penduduk tersebut.

   b) Berapakah jangkaan purata umur mati penduduk lelaki berumur tepat 40 tahun sekarang yang akan mati antara umur 40 dan 60 tahun?

   c) Berapakah kanak-kanak daripada sejumlah 1 juta bayi lelaki dan 1 juta bayi perempuan yang dilahirkan pada 1996 dijangka dapat meneruskan hidup sehingga tahun 2002 bagi membolehkan mereka memasuki tahun pertama persekolahan? Andaikan nisbah guru murid adalah 1:40, berapakah jumlah guru diperlukan bagi menampung keperluan pelajar tahun pertama tersebut?

...2/-

d) Dalam satu kependudukan stabil yang mengalami kematian sama seperti dalam Jadual Hayat Lelaki, berapakah peratusan penduduk dalam ketogeri:

i) 0 hingga 15 tahun
ii) 15 hingga 65 tahun
iii) lebih daripada 65 tahun.

(100 markah)

4. Berdasarkan maklumat yang diberi, tentukan anggaran nisbah kematian bagi umur x = q(x) dengan menggunakan Kaedah Tak Lansung Keyatiman.

Umur	Jumlah Wanita	Kanak-Kanak Pernah Dilahirkan	Kanak-Kanak Masih Lagi Hidup
15 - 19	2218	493	376
20 - 24	1697	2825	2158
25 - 29	1515	5504	4217
30 - 34	1522	8100	5850
35 - 39	1370	8983	6545
40 - 44	1189	8002	5621
45 - 49	810	5558	3817

(100 markah)

5. (a) Berdasarkan data yang diberi, tentukan Umur Kahwin Mengikut Bujang (SMAM) wanita pada 1990.

Jumlah Perempuan Negara X 1990			
Umur	Bujang	Pernah Kahwin	Jumlah
15 - 19	2171	509	2680
20 - 24	806	1251	2057
25 - 29	288	1603	1791
30 - 34	146	1414	1560
35 - 39	82	1223	1305
40 - 44	35	1043	1078
45 - 49	41	832	863
50 - 54	22	660	682

(70 markah)

(b) Huraikan erti bagi rangkai kata berikut:

i. Kelahiran hidup
ii. Kematian Neonatal
iii. Kematian Postneonatal
iv. Kematian Perinatal
v. Kematian Janin

(30 markah)

...3/-

6. Berdasarkan maklumat kependudukan bagi ketiga-tiga kumpulan etnik di Semenanjung Malaysia pada 1991, tentukan;

Penduduk 1991	CBR bagi 1000 penduduk	CDR bagi 1000 penduduk
Melayu - 8,306,234	31.7	4.4
Cina - 4,250,969	19.5	5.0
India - 1, 380,048	23.4	6.1
Jumlah - 13,937,251	27.0	4.9

(a) Jumlah penduduk Semenanjung Malaysia dan jumlah penduduk berdasarkan pecahan etnik pada tahun 2020 dengan andaian kadar pertambahan penduduk adalah tetap.

(50 markah)

(b) Penduduk Malaysia pada tahun 1991 berjumlah 18,379,655 dengan kadar pertambahan 2.6% setahun. Penduduk Kelantan pada tahun yang sama berjumlah 1,207,684 dengan kadar pertambahan sebanyak 2.7%. Tentukan berapa tahun kah yang diperlukan bagi membolehkan jumlah penduduk Kelantan meningkat sama dengan jumlah penduduk Malaysia pada 1991 dengan andaian kadar pertambahan penduduk adalah tetap.

(50 markah)

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x	l_x	d_x	q_x	L_x	T_x	$\dot{e}_x$
51	90,818	638	0.00702	90,499.0	2,204,964.5	24.28
52	90,180	702	0.00778	89,829.0	2,114,465.5	23.45
53	89,478	769	0.00859	89,093.5	2,024,636.5	22.63
54	88,709	840	0.00947	88,289.0	1,935,543.0	21.82
55	87,869	916	0.01043	87,411.0	1,847,254.0	21.02
56	86,953	996	0.01146	86,455.0	1,759,843.0	20.24
57	85,957	1,081	0.01258	85,416.5	1,673,388.0	19.47
58	84,876	1,172	0.01381	84,290.0	1,587,971.5	18.71
59	83,704	1,269	0.01516	83,069.5	1,503,681.5	17.96
60	82,435	1,372	0.01664	81,749.0	1,420,612.0	17.23
61	81,063	1,482	0.01828	80,322.0	1,338,863.0	16.52
62	79,581	1,600	0.02010	78,781.0	1,258,541.0	15.81
63	77,981	1,723	0.02210	77,119.5	1,179,760.0	15.13
64	76,258	1,853	0.02430	75,331.5	1,102,640.5	14.46
65	74,405	1,987	0.02671	73,411.5	1,027,309.0	13.81
66	72,418	2,126	0.02936	71,355.0	953,897.5	13.17
67	70,292	2,267	0.03225	69,158.5	882,542.5	12.56
68	68,025	2,410	0.03543	66,820.0	813,384.0	11.96
69	65,615	2,552	0.03889	64,339.0	746,564.0	11.38
70	63,063	2,690	0.04265	61,718.0	682,225.0	10.82
71	60,373	2,821	0.04673	58,962.5	620,507.0	10.28
72	57,552	2,943	0.05114	56,080.5	561,544.5	9.76
73	54,609	3,054	0.05592	53,082.0	505,464.0	9.26
74	51,555	3,148	0.06106	49,981.0	452,382.0	8.77
75	48,407	3,223	0.06658	46,795.5	402,401.0	8.31
76	45,184	3,275	0.07249	43,546.5	355,605.5	7.87
77	41,909	3,303	0.07881	40,257.5	312,059.0	7.45
78	38,606	3,304	0.08558	36,954.0	271,801.5	7.04
79	35,302	3,278	0.09285	33,663.0	234,847.5	6.65
80	32,024	3,222	0.10062	30,413.0	201,184.5	6.28
81	28,802	3,138	0.10896	27,233.0	170,771.5	5.93
82	25,664	3,026	0.11789	24,151.0	143,538.5	5.59
83	22,638	2,885	0.12744	21,195.5	119,387.5	5.27
84	19,753	2,718	0.13762	18,394.0	98,192.0	4.97
85	17,035	2,529	0.14848	15,770.5	79,798.0	4.68
86	14,506	2,321	0.16002	13,345.5	64,027.5	4.41
87	12,185	2,099	0.17224	11,135.5	50,682.0	4.16
88	10,086	1,868	0.18519	9,152.0	39,546.5	3.92
89	8,218	1,634	0.19880	7,401.0	30,394.5	3.70
90	6,584	1,402	0.21296	5,883.0	22,293.5	3.49
91	5,182	1,179	0.22749	4,592.5	17,110.5	3.30
92	4,003	970	0.24224	3,518.0	12,518.0	3.13
93	3,033	780	0.25705	2,643.0	9,000.0	2.97
94	2,253	612	0.27181	1,947.0	6,357.0	2.82
95	1,641	470	0.28638	1,406.0	4,410.0	2.69
96	1,171	352	0.30063	995.0	3,004.0	2.57
97	819	258	0.31448	690.0	2,009.0	2.45
98	561	184	0.32781	469.0	1,319.0	2.35
99	377	128	0.34055	313.0	850.0	2.25

SBW314-2

x	l_x	d_x	q_x	L_x	T_x	$\mathring{e}_x$
0	100,000	1,147	0.01147	99,197.0	7,123,096.0	71.23
1	98,853	92	0.00093	98,798.0	7,023,899.0	71.05
2	98,761	71	0.00072	98,725.5	6,925,101.0	70.12
3	98,690	55	0.00056	98,662.5	6,826,375.5	69.17
4	98,635	46	0.00047	98,612.0	6,727,713.0	68.21
5	98,589	39	0.00040	98,569.5	6,629,101.0	67.24
6	98,550	34	0.00035	98,533.0	6,530,531.5	66.27
7	98,516	32	0.00032	98,500.0	6,431,998.5	65.29
8	98,484	30	0.00030	98,469.0	6,333,498.5	64.31
9	98,454	29	0.00029	98,439.5	6,235,029.5	63.33
10	98,425	28	0.00028	98,411.0	6,136,590.0	62.35
11	98,397	28	0.00028	98,383.0	6,038,179.0	61.37
12	98,369	30	0.00030	98,354.0	5,939,796.0	60.38
13	98,339	33	0.00034	98,322.5	5,841,442.0	59.40
14	98,306	41	0.00042	98,285.5	5,743,119.5	58.42
15	98,265	56	0.00057	98,237.0	5,644,834.0	57.45
16	98,209	83	0.00085	98,167.5	5,546,597.0	56.48
17	98,126	125	0.00127	98,063.5	5,448,429.5	55.52
18	98,001	163	0.00166	97,919.5	5,350,366.0	54.60
19	97,838	177	0.00181	97,749.5	5,252,446.5	53.69
20	97,661	175	0.00179	97,573.5	5,154,697.0	52.78
21	97,486	163	0.00167	97,404.5	5,057,123.5	51.88
22	97,323	155	0.00159	97,245.5	4,959,719.0	50.96
23	97,168	150	0.00154	97,093.0	4,862,473.5	50.04
24	97,018	146	0.00150	96,945.0	4,765,380.5	49.12
25	96,872	141	0.00146	96,801.5	4,668,435.5	48.19
26	96,731	137	0.00142	96,662.5	4,571,634.0	47.26
27	96,594	133	0.00138	96,527.5	4,474,971.5	46.33
28	96,461	129	0.00134	96,396.5	4,378,444.0	45.39
29	96,332	125	0.00130	96,269.5	4,282,047.5	44.45
30	96,207	121	0.00126	96,146.5	4,185,778.0	43.51
31	96,086	120	0.00125	96,026.0	4,089,631.5	42.56
32	95,966	120	0.00125	95,906.0	3,993,605.5	41.61
33	95,846	122	0.00127	95,785.0	3,897,699.5	40.67
34	95,724	126	0.00132	95,661.0	3,801,914.5	39.72
35	95,598	133	0.00139	95,531.5	3,706,253.5	38.77
36	95,465	142	0.00149	95,394.0	3,610,722.0	37.82
37	95,323	153	0.00161	95,246.5	3,515,328.0	36.88
38	95,170	167	0.00176	95,086.5	3,420,081.5	35.94
39	95,003	183	0.00193	94,911.5	3,324,995.0	35.00
40	94,820	203	0.00214	94,718.5	3,230,083.5	34.07
41	94,617	225	0.00238	94,504.5	3,135,365.0	33.14
42	94,392	251	0.00266	94,266.5	3,040,860.5	32.22
43	94,141	279	0.00296	94,001.5	2,946,594.0	31.30
44	93,862	311	0.00331	93,706.5	2,852,592.5	30.39
45	93,551	346	0.00370	93,378.0	2,758,886.0	29.49
46	93,205	385	0.00413	93,012.5	2,665,508.0	28.60
47	92,820	426	0.00459	92,607.0	2,572,495.5	27.71
48	92,394	473	0.00512	92,157.5	2,479,888.5	26.84
49	91,921	524	0.00570	91,659.0	2,387,731.0	25.98
50	91,397	579	0.00634	91,107.5	2,296,072.0	25.12

Jadual Hayat Perempuan

SBU314-3

X	l_x	d_x	q_x	L_x	T_x	$\dot{e}_x$
0	100,000	905	0.00905	99,366.5	7,827,516.5	78.28
1	99,095	84	0.00085	99,044.5	7,728,150.0	77.99
2	99,011	49	0.00049	98,986.5	7,629,105.5	77.05
3	98,962	33	0.00033	98,945.5	7,530,119.0	76.09
4	98,929	27	0.00027	98,915.5	7,431,173.5	75.12
5	98,902	23	0.00023	98,890.5	7,332,258.0	74.14
6	98,879	20	0.00020	98,869.0	7,233,367.5	73.15
7	98,859	19	0.00019	98,849.5	7,134,498.5	72.17
8	98,840	19	0.00019	98,830.5	7,035,649.0	71.18
9	98,821	18	0.00018	98,812.0	6,936,818.5	70.20
10	98,803	18	0.00018	98,794.0	6,838,006.5	69.21
11	98,785	18	0.00018	98,776.0	6,739,212.5	68.22
12	98,767	19	0.00019	98,757.5	6,640,436.5	67.23
13	98,748	21	0.00021	98,737.5	6,541,679.0	66.25
14	98,727	25	0.00025	98,714.5	6,442,941.5	65.26
15	98,702	31	0.00031	98,686.5	6,344,227.0	64.28
16	98,671	37	0.00038	98,652.5	6,245,540.5	63.30
17	98,634	44	0.00045	98,612.0	6,146,888.0	62.32
18	98,590	47	0.00048	98,566.5	6,048,276.0	61.35
19	98,543	48	0.00049	98,519.0	5,949,709.5	60.38
20	98,495	48	0.00049	98,471.0	5,851,190.5	59.41
21	98,447	48	0.00049	98,423.0	5,752,719.5	58.43
22	98,399	48	0.00049	98,375.0	5,654,296.5	57.46
23	98,351	48	0.00049	98,327.0	5,555,921.5	56.49
24	98,303	48	0.00049	98,279.0	5,457,594.5	55.52
25	98,255	48	0.00049	98,231.0	5,359,315.5	54.54
26	98,207	49	0.00050	98,182.5	5,261,084.5	53.57
27	98,158	49	0.00050	98,133.5	5,162,902.0	52.60
28	98,109	49	0.00050	98,084.5	5,064,768.5	51.62
29	98,060	50	0.00051	98,035.0	4,966,684.0	50.65
30	98,010	51	0.00052	97,984.5	4,868,649.0	49.68
31	97,959	54	0.00055	97,932.0	4,770,664.5	48.70
32	97,905	57	0.00058	97,876.5	4,672,732.5	47.73
33	97,848	61	0.00062	97,817.5	4,574,856.0	46.75
34	97,787	66	0.00067	97,754.0	4,477,038.5	45.78
35	97,721	71	0.00073	97,685.5	4,379,284.5	44.81
36	97,650	78	0.00080	97,611.0	4,281,599.0	43.85
37	97,572	87	0.00089	97,528.5	4,183,988.0	42.88
38	97,485	97	0.00099	97,436.5	4,086,459.5	41.92
39	97,388	107	0.00110	97,334.5	3,989,023.0	40.96
40	97,281	119	0.00122	97,221.5	3,891,688.5	40.00
41	97,162	132	0.00136	97,096.0	3,794,467.0	39.05
42	97,030	147	0.00151	96,956.5	3,697,371.0	38.11
43	96,883	163	0.00168	96,801.5	3,600,414.5	37.16
44	96,720	181	0.00187	96,629.5	3,503,618.0	36.22
45	96,539	200	0.00207	96,439.0	3,406,983.5	35.29
46	96,339	220	0.00228	96,229.0	3,310,544.5	34.36
47	96,119	242	0.00252	95,998.0	3,214,315.5	33.44
48	95,877	266	0.00277	95,744.0	3,118,317.5	32.52
49	95,611	292	0.00305	95,465.0	3,022,573.5	31.61
50	95,319	318	0.00334	95,160.0	2,927,108.5	30.71

Jadual Hayat Perempuan

SBW314-4

x	l_x	d_x	q_x	L_x	T_x	$\mathring{e}_x$
51	95,001	347	0.00365	94,827.5	2,831,948.5	29.81
52	94,654	377	0.00398	94,465.5	2,737,121.0	28.92
53	94,277	410	0.00435	94,072.0	2,642,655.5	28.03
54	93,867	446	0.00475	93,644.0	2,548,583.5	27.15
55	93,421	484	0.00518	93,179.0	2,454,939.5	26.28
56	92,937	527	0.00567	92,673.5	2,361,760.5	25.41
57	92,410	572	0.00619	92,124.0	2,269,087.0	24.55
58	91,838	622	0.00677	91,527.0	2,176,963.0	23.70
59	91,216	675	0.00740	90,878.5	2,085,436.0	22.86
60	90,541	732	0.00809	90,175.0	1,994,557.5	22.03
61	89,809	796	0.00886	89,411.0	1,904,382.5	21.20
62	89,013	863	0.00970	88,581.5	1,814,971.5	20.39
63	88,150	937	0.01063	87,681.5	1,726,390.0	19.58
64	87,213	1,018	0.01167	86,704.0	1,638,708.5	18.79
65	86,195	1,067	0.01238	85,661.5	1,552,004.5	18.01
66	85,128	1,203	0.01413	84,526.5	1,466,343.0	17.23
67	83,925	1,308	0.01559	83,271.0	1,381,816.5	16.46
68	82,617	1,421	0.01720	81,906.5	1,298,545.5	15.72
69	81,196	1,542	0.01899	80,425.0	1,216,639.0	14.98
70	79,654	1,671	0.02098	78,818.5	1,136,214.0	14.26
71	77,983	1,807	0.02317	77,079.5	1,057,395.5	13.56
72	76,176	1,952	0.02563	75,200.0	980,316.0	12.87
73	74,224	2,110	0.02843	73,169.0	905,116.0	12.19
74	72,114	2,279	0.03160	70,974.5	831,947.0	11.54
75	69,835	2,459	0.03521	68,605.5	760,972.5	10.90
76	67,376	2,649	0.03932	66,051.5	692,367.0	10.28
77	64,727	2,847	0.04399	63,303.5	626,315.5	9.68
78	61,880	3,048	0.04925	60,356.0	563,012.0	9.10
79	58,832	3,246	0.05517	57,209.0	502,656.0	8.54
80	55,586	3,435	0.06179	53,868.5	445,447.0	8.01
81	52,151	3,606	0.06915	50,348.0	391,578.5	7.51
82	48,545	3,753	0.07730	46,668.5	341,230.5	7.03
83	44,792	3,864	0.08627	42,860.0	294,562.0	6.58
84	40,928	3,930	0.09603	38,963.0	251,702.0	6.15
85	36,998	3,943	0.10656	35,026.5	212,739.0	5.75
86	33,055	3,896	0.11785	31,107.0	177,712.5	5.38
87	29,159	3,786	0.12985	27,266.0	146,605.5	5.03
88	25,373	3,616	0.14253	23,565.0	119,339.5	4.70
89	21,757	3,391	0.15586	20,061.5	95,774.5	4.40
90	18,366	3,119	0.16982	16,806.5	75,713.0	4.12
91	15,247	2,811	0.18434	13,841.5	58,906.5	3.86
92	12,436	2,480	0.19942	11,196.0	45,065.0	3.62
93	9,956	2,140	0.21499	8,886.0	33,869.0	3.40
94	7,816	1,806	0.23102	6,913.0	24,983.0	3.20
95	6,010	1,487	0.24748	5,266.5	18,070.0	3.01
96	4,523	1,196	0.26432	3,925.0	12,803.5	2.83
97	3,327	936	0.28147	2,859.0	8,878.5	2.67
98	2,391	715	0.29893	2,033.5	6,019.5	2.52
99	1,676	531	0.31662	1,410.5	3,986.0	2.38

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Table B.1 Multiplying factors for estimating the proportion of children born alive who die by age r, q(r), from the proportion dead among children ever born to women 15-19, 20-24, etc.

Age group of woman	Factors							
15-19 q(1)	0.859	0.890	0.928	0.977	1.041	1.129	1.254	1.425
20-24 q(2)	0.938	0.959	0.983	1.010	1.043	1.082	1.129	1.188
25-29 q(3)	0.948	0.962	0.978	0.994	1.012	1.033	1.055	1.081
30-34 q(5)	0.961	0.975	0.988	1.002	1.016	1.031	1.046	1.063
35-39 q(10)	0.966	0.982	0.996	1.011	1.026	1.040	1.054	1.069
40-44 q(15)	0.938	0.955	0.971	0.988	1.004	1.021	1.037	1.052
45-49 q(20)	0.937	0.953	0.969	0.986	1.003	1.021	1.039	1.057
50-54 q(25)	0.949	0.966	0.983	1.001	1.019	1.036	1.054	1.072
55-59 q(30)	0.951	0.968	0.985	1.002	1.020	1.039	1.058	1.076
60-64 q(35)	0.949	0.965	0.982	0.999	1.016	1.034	1.052	1.070
Guide to selection of multiplier								
P_1/P_2	0.387	0.330	0.268	0.205	0.143	0.090	0.045	0.014
P_2/P_3	0.616	0.577	0.535	0.490	0.441	0.421	0.344	0.271
m	24.7	25.7	26.7	27.7	28.7	29.7	30.7	31.7

Source: Brass, W. (1978) 'Indirect Methods of Estimating Mortality Illustrated by Application to Middle East and North African Data', in United Nations Economic Commission for Western Asia (1978), The Population Frame Work: Data Collection, Demographic Analysis, Population and Development. Population Division, ECWA, Beirut (Lebanon) (p.124).